WHAT IS CLAIMED IS:

1. A method of manufacturing a liquid medium containing composite ultrafine particles, said method comprising the steps of:

preparing a dispersion medium that is a liquid medium in which ultrafine particles comprising different materials from each other are dispersed

introducing said dispersion medium into a first chamber and a second chamber having an inlet/outlet with a high pressure, respectively;

applying high frequency voltage to said first and second chambers, respectively, exciting dispersion medium communicating within the first and second chambers, respectively;

applying direct current voltage to each excited dispersion medium on the downstream side than the application position of said high frequency voltage and electrifying each dispersion medium in different polarities from each other; and

aggregating and bonding through excitation transfer as well as electrostatically aggregating ultrafine particles each other in said liquid medium in its crashing field by injecting said dispersion medium electrified in different polarities from each other through two nozzle sections electrically separated from each other at a high speed, respectively, and crossing/crashing each other.

2. The method according to claim 1, wherein said liquid medium is water, alcohol or mixed liquor of water and alcohol.

3. The method according to claim 1, wherein said dispersion medium is prepared by preparing a plurality of solid-liquid mixed fluid in which different materials from each other are mixed in a liquid medium, injecting one solid-liquid mixed fluid out of these solid-liquid mixed fluids through a plurality of nozzle sections at a high speed, crossing/crashing each other, subsequently, injecting remaining solid-liquid mixed fluid while said remaining solid-liquid mixed fluid is in turn mixed with already processed solid-liquid mixed fluid through a plurality of nozzle sections at a high speed, and crossing/crashing each other.

4. The method according to claim 1, wherein said dispersion medium is prepared by injecting a solid-liquid mixed fluid that is a liquid medium in which different materials from each other are mixed through a plurality of nozzle sections at a high speed, and crossing/crashing each other.

5. The method according to claim 3 or 4, wherein said solid-liquid mixed fluid is introduced into a plurality of nozzle sections with a high pressure of 500 kg/cm^2 or more.

6. A method of manufacturing a liquid medium containing composite ultrafine particles, said method

comprising the steps of:

preparing a first dispersion medium in which ultrafine particles comprising at least one material selected from organic polymers, metals and inorganic compounds are dispersed;

preparing a second dispersion medium that is a liquid medium in which at least one kind of organic polymer ultrafine particles are dispersed;

introducing said first and second dispersion media into first and second chambers having an inlet/outlet, respectively;

applying high frequency voltage to said first and second chambers, respectively, exciting said first and second dispersion media communicating within said first and second chambers, respectively;

applying direct current voltage to said first and second dispersion media on the downstream side than the application position of said high frequency voltage and electrifying each dispersion medium in different polarities from each other; and

aggregating and bonding through excitation transfer as well as electrostatically aggregating ultrafine particles each other in said first and second dispersion media in its crashing field by injecting said first and second dispersion media electrified in different polarities from each other through two nozzle sections electrically separated from each other at a

high speed, respectively, and crossing/crashing each other.

7. The method according to claim 6, wherein said liquid medium is water, alcohol or mixed liquor of water and alcohol.

8. The method according to claim 6, wherein said first dispersion medium is prepared by injecting a solid-liquid mixed fluid that is a liquid medium into which at least one material selected from organic polymers, metals and inorganic materials is mixed through a plurality of nozzle sections at a high speed, and crossing/crashing each other.

9. The method according to claim 6, wherein said first dispersion medium that is a liquid medium in which ultrafine particles comprising at least one material selected from metals and inorganic materials is dispersed is prepared by injecting and crashing a solid-liquid mixed fluid that is a liquid medium in which a particle comprising at least one kind of materials selected from metals and inorganic materials is dispersed through a plurality of nozzle sections against a mixed fluid crashing member made of a material having a higher rigidity than that of said particle.

10. The method according to claim 6, wherein said second dispersion medium is prepared by injecting a solid-liquid mixed fluid that is a liquid medium in

which at least one organic polymer is mixed through a plurality of nozzle sections under a higher pressure than atmospheric pressure at a high speed and crossing/crashing each other.

11. The method according to claim 8 or 10, wherein said solid-liquid mixed fluid is introduced into a plurality of nozzle sections under a high pressure of 500 kg/cm^2 or more.

12. A apparatus for manufacturing a liquid medium containing composite ultrafine particles, comprising:

a first chamber having an inlet/outlet in which a dispersion medium is introduced, and said dispersion medium consisting of a liquid medium in which ultrafine particles of different materials from each other are dispersed;

a second chamber having an inlet/outlet in which said dispersion medium is introduced;

an aggregating/bonding means having two nozzle sections electrically separated each other for introducing said dispersion medium communicating within said first and second chambers, injecting these dispersion media and crossing/crashing each other;

a high frequency source for applying a high frequency voltage to said dispersion medium communicating within said first and second chambers through an insulating member that high frequency is capable of being transmitted; and

a direct current source connected to a member located up to said nozzle section on the downstream side in a flow direction of said dispersion medium than the application position of said high frequency voltage.

13. The apparatus according to claim 12, wherein said first and second chambers are made of an electrically conductive material, and said high frequency source is connected to said first and second chambers through an insulating member that high frequency voltage is capable of being transmitted.

14. The apparatus according to claim 12, wherein said aggregating/bonding means comprises: an insulative supporting main body having a hole opened on both sides; two block-like members mounted on both side of this supporting main body so as to seal said hole, respectively and comprising an electrically conductive material having passages connected to said first and second chambers, respectively; and two nozzle sections formed on these block-like members so as to communicate with said each passage for injecting said dispersion medium within said hole and crossing/crashing each other.

15. The apparatus according to claim 14, wherein said first and second chambers are made of an electrically conductive material and a film made of platinum or gold is formed on inner surface of said first and second chambers and each passage of said

block-like members.

16. The apparatus according to claim 12, wherein dispersion medium preparation means is further applied on upstream side of said first and second chambers, and said dispersion medium preparation means has a cavity portion in it, and comprises: a main body having a plurality of passages through which a solid-liquid mixed fluid that is a liquid medium in which different materials are mixed are introduced with a high pressure; a plurality of nozzle sections formed on this main body so as to communicate with said each passage and for injecting said solid-liquid mixed fluid within said cavity portion and crossing/crashing each other; an exhausting section provided on said main body so as to communicate with said cavity portion; a mixed fluid crashing member freely separably and contactably inserted to an injection flows crossing portion of said plurality of solid-liquid mixed fluid injecting from said each nozzle section to said main body, a mixed fluid crashing member whose at least surface crashed by said liquid medium is made of substance having a higher rigidity than said materials.

17. The apparatus according to claim 16, wherein said nozzle sections are mounted on said main body so as to inject said solid-liquid mixed fluid in a slanting direction and crossing/crashing each other.

18. The apparatus according to claim 16, wherein

said mixed fluid crashing member is made of metal base material whose surface is electrodeposited with diamond particles.

19. The apparatus according to claim 16, wherein said mixed fluid crashing member is made of a sintered diamond.

20. The apparatus according to claim 16, wherein said dispersion medium preparation means has two nozzle sections and said mixed fluid crashing member is in a triangle pole shape having two surfaces against which solid-liquid mixed fluid injected from said two nozzle sections is crashed.

21. The apparatus according to claim 12, wherein said first and second chambers are made of an electrically conductive material and said direct current source is connected to said first and second chamber portions on the downstream side in a flow direction of said dispersion medium than the application position of said high frequency voltage.

22. The apparatus according to claim 12, wherein said direct current source is connected to a pipe for joining said first and second chambers and said aggregating/bonding means.

23. The apparatus according to claim 14, wherein said direct current source is connected to said two block-like members of said aggregating/bonding means.

24. A apparatus for manufacturing a liquid medium

containing composite ultrafine particles, comprising:

first dispersion medium preparation means for preparing a first dispersion medium that is a liquid medium in which ultrafine particles comprising at least one material selected from organic polymers, metals and inorganic materials are dispersed;

second dispersion medium preparation means for preparing a second dispersion medium that is a liquid medium in which at least one of organic polymer ultrafine particles is dispersed;

a first chamber having an inlet/outlet in which said pressurized first dispersion medium is introduced from said first dispersion medium preparation means;

a second chamber having an inlet/outlet in which said pressurized second dispersion medium is introduced from said second dispersion medium preparation means;

an aggregating/bonding means having two nozzle sections electrically separated from each other for introducing said first and second dispersion media communicating with said first and second chambers, respectively, and injecting these dispersion media and crossing/crashing each other;

a high frequency source for applying a high frequency voltage to each dispersion medium communicating within said first and second chambers through an insulating member through which high frequency is capable of being transmitted; and

a direct current source connected to a member located up to said nozzle section on the downstream side in a flow direction of said first and second dispersion media than the application position of said high frequency voltage.

25. The apparatus according to claim 24, wherein said first dispersion medium preparation means has a cavity portion in it, and comprises: a main body having a plurality of passages through which a solid-liquid mixed fluid that is a liquid medium in which one material selected from organic polymers, metals and inorganic compounds are dispersed are introduced with a high pressure, a plurality of nozzle sections formed on this main body so as to communicate with said each passage and for injecting said solid-liquid mixed fluid within said cavity portion and crossing/crashing each other; an exhausting section provided on said main body so as to communicate with said cavity portion; and a mixed fluid crashing member freely separably and contactably inserted to an injection flows crossing portion of said plurality of solid-liquid mixed fluid injecting from said each nozzle section to said main body, and a mixed fluid crashing member whose at least surface crashed by said liquid medium is made of substance having a higher rigidity than said materials.

26. The apparatus according to claim 25, wherein said nozzle sections are mounted on said main body so

as to inject said solid-liquid mixed fluid in a slanting direction and crossing/crashing each other.

27. The apparatus according to claim 25, wherein said mixed fluid crashing member is made of metal base material whose surface is electrodeposited with diamond particles.

28. The apparatus according to claim 25, wherein said mixed fluid crashing member is made of a sintered diamond.

29. The apparatus according to claim 25, wherein said first dispersion medium preparation means has two nozzle sections and said mixed fluid crashing member is in a triangle pole shape having two surfaces against which solid-liquid mixed fluid injected from said two nozzle sections is crashed.

30. The apparatus according to claim 24, wherein said second dispersion medium preparation means has a cavity portion in it, and comprises: s a main body having a plurality of passages through which a solid-liquid mixed fluid that is a liquid medium in which at least one organic polymer is mixed is introduced with a high pressure; a plurality of nozzle sections formed on this main body so as to communicate with said each passage and for injecting said solid-liquid mixed fluid within said cavity portion and crossing/crashing each other; and an exhausting section provided on said main body so as to communicate with said cavity portion and

also serving as a pressure controller within said cavity portion.

31. The apparatus according to claim 24, wherein said first and second chambers are made of an electrically conductive material, and said high frequency source is connected to said first and second chambers through an insulating member that high frequency voltage is capable of being transmitted.

32. The apparatus according to claim 24, wherein said aggregating/bonding means comprises: an insulative supporting main body having a hole opened on both sides; two block-like members mounted on both side of this supporting main body so as to seal said hole, respectively and comprising an electrically conductive material having passages connected to said first and second chambers, respectively; and two nozzle sections formed on these block-like members so as to communicate with said each passage for injecting said dispersion medium within said hole and crossing/crashing each other.

33. The apparatus according to claim 32, wherein said first and second chambers are made of an electrically conductive material and a film made of platinum or gold is formed on inner surface of said first and second chambers and each passage of said block-like members.

34. The apparatus according to claim 24, wherein

said first and second chambers are made of an electrically conductive material and said direct current source is connected to said first and second chamber portions on the downstream side in a flow direction of said first and second dispersion media than the application position of said high frequency voltage.

35. The apparatus according to claim 24, wherein said direct current source is connected to a pipe for joining said first and second chambers and said aggregating/bonding means.

36. The apparatus according to claim 32, wherein said direct current source is connected to said two block-like members of said aggregating/bonding means.